

# Legal Regulation of the Commercial Use of the Radio-Frequency Spectrum

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## Abstract

Owing to the physical properties of the geostationary orbit<sup>1</sup> (GSO), it is the most sought-after part of outer space and an indispensable resource for the development of satellite telecommunications. Although the radius of the GSO is quite expansive,<sup>2</sup> it does not allow for an unlimited number of satellites. This makes orbital positions<sup>3</sup> increasingly in demand. At the same time, as an integral part of outer space, the GSO is not subject to national appropriation.<sup>4</sup> States may only be temporarily granted the right to use certain frequencies and technical parameters in GSO in strict compliance with the procedures set forth by the International Telecommunication Union (ITU). Such temporary right does not empower its holder to make any transactions related to the alienation of an orbital position. However, one must admit that there exists a “secondary market”, where one can “lease orbital positions”.<sup>5</sup> So what does this phenomenon mean and is it legally regulated? To answer these questions one needs to review several examples of transactions aimed at leasing orbital positions, understand their practical advantages, and consider legal issues.

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- 1 The geostationary satellite orbit is a circular orbit 35,786 kilometers above the Earth's equator and following the direction of the Earth's rotation. An object in such an orbit has an orbital period equal to the Earth's rotational period (one sidereal day), and thus appears motionless, at a fixed position in the sky, to ground observers.
- 2 The GSO has a radius of 42,164 kilometers.
- 3 Orbital position means a location in the GSO that may be used for locating a telecommunications satellite.
- 4 Article II, Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, January 27, 1967. More in section III.1.
- 5 Hereinafter, the words “lease” and “leasing” with respect to orbital positions are used without quotation marks, but this does not mean a lease in the legal sense or imply granting the use of or occupying property. Alternative similar names also exist (e.g., “sale of orbital positions” and “spectrum trading”).

## I. Intersputnik's Experience

The experience of the Intersputnik International Organization of Space Communications (Intersputnik), where the author has worked for ten years, will help look at this phenomenon from the inside.

### I.1. General Information

Intersputnik is an intergovernmental satellite organization founded in 1971.<sup>6</sup> As set forth in the Agreement on its Establishment,<sup>7</sup> Intersputnik's main objective is to ensure cooperation in designing, procuring, operating and developing the satellite telecommunications system of its member states. To cover the territories of all member states and offer a sufficiently wide range of telecommunications services, Intersputnik for a long time used to lease satellite capacity from satellite fleet operators. At the same time, the use of Intersputnik's own satellite capacity could reduce its dependence and help grow on its own in the interests of the member states.

It is important in this respect that Intersputnik has not embarked on a path towards privatization as some other international organizations, which separated intergovernmental organizations and satellite operators. Instead, Intersputnik keeps its status of an intergovernmental organization, which performs the functions of a satellite operator.

### I.2. Own Radio-Frequency Spectrum

This status made it possible that starting from the mid-90s Intersputnik, within the framework of its technological policy and in accordance with its mission, filed with the ITU satellite networks<sup>8</sup> in various orbital positions for their further development. At all times Intersputnik invited its member states to take part in joint projects aimed at manufacturing, launching and operating satellites. Regretfully, for a number of objective reasons it was impossible to draw enough investors from among Intersputnik member states.

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6 As of 2015 Intersputnik has the following twenty six member states: Republic of Azerbaijan, Islamic Republic of Afghanistan, Republic of Belarus, Republic of Bulgaria, Hungary, Socialist Republic of Vietnam, Federal Republic of Germany, Georgia, Republic of India, Republic of Yemen, Republic of Kazakhstan, Kyrgyz Republic, Democratic People's Republic of Korea, Republic of Cuba, Lao People's Democratic Republic, Mongolia, Republic of Nicaragua, Republic of Poland, Russian Federation, Romania, Syrian Arab Republic, Federal Republic of Somalia, Republic of Tajikistan, Turkmenistan, Ukraine, Czech Republic. Intersputnik is headquartered in Moscow (Russian Federation).

7 Agreement on the Establishment of the Intersputnik International System and Organization of Space Communications, November 15, 1971.

8 Satellite network means a satellite system or a part of a satellite system, consisting of only one satellite and the cooperating earth stations (No. 1.112, Section I, Article I, Radio Regulations of the International Telecommunication Union).

Unable to fully finance a new satellite on its own, but willing to keep the possibility of using Intersputnik's radio-frequency spectrum in their interests, Intersputnik member states adopted a strategy for Intersputnik's growth. According to this strategy, the radio-frequency spectrum can be developed by Intersputnik in cooperation with outside partners.

### **1.3. Principles and Benefits of Cooperation**

Essentially, such cooperation boils down to the following.

Intersputnik grants to the outside partner the right to operate a satellite and earth stations using Intersputnik's radio-frequency spectrum. At the same time, Intersputnik continues to be fully responsible for their operation in compliance with the ITU Radio Regulations<sup>9</sup> and provide the international legal protection of the radio-frequency spectrum, including frequency coordination and contacts with the ITU, administrations,<sup>10</sup> and satellite operators. This means that Intersputnik's contribution is not limited to the granting of the right of use of the radio-frequency spectrum, rather it includes related intellectual products, professional expertise, and long-term experience.

The outside partner, in turn, is responsible for the manufacture, launch and deployment of a new satellite. To make sure that a future satellite system fully complies with Intersputnik's frequency filing and meets the interests of its member states to the maximum possible extent, Intersputnik participates in defining the configuration and technical parameters of the satellite.

The benefits of cooperation based on the use of Intersputnik's radio-frequency spectrum are obvious. On the one hand, it let Intersputnik obtain satellite capacity and provide its member states with all the necessary advanced telecommunications services, thus fulfilling Intersputnik's mission. On the other hand, such cooperation slashes costs and risks of the deployment of a new satellite system.

Intersputnik has made much progress in this kind of cooperation. Today, seven orbital positions are developed by Intersputnik jointly with the outside partners. Satellites have been already deployed in three of these positions while in the other ones satellites will be placed in the near future.

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9 The Radio Regulations is an intergovernmental treaty text of the International Telecommunication Union. Covering both legal and technical issues, the Radio Regulations serve as a supranational instrument for the optimal international management of the radio spectrum. The most recent published version of the Radio Regulations is the "Edition of 2012". More at [www.itu.int/pub/R-REG-RR-2012](http://www.itu.int/pub/R-REG-RR-2012).

10 Administration means any governmental department or service responsible for discharging the obligations undertaken in the Constitution of the International Telecommunication Union, in the Convention of the International Telecommunication Union and in the Administrative Regulations (No. 1.2, Section I, Article I, Radio Regulations of the International Telecommunication Union).

#### **I.4. First Project**

The first joint satellite project was successfully carried out as long ago as 1999, when a new satellite called LMI-1<sup>11</sup> was launched to 75 degrees East longitude geostationary orbital position<sup>12</sup> for further operation using Intersputnik's radio-frequency spectrum. This satellite was built for a joint venture which was established by Intersputnik and Lockheed Martin Corporation in 1997.

After the joint venture had changed its owner, the 75 degrees East continued to be used with a new partner – ABS Global, Ltd.<sup>13</sup> Due to this partnership Intersputnik started using more radio-frequency spectrum in that orbital position. In 2014 a new powerful satellite ABS-2 replaced the one that was launched in 1999. In the first half of 2016 it is planned to launch the ABS-2A satellite, which will operate at 75 degrees East simultaneously with ABS-2.

For Intersputnik it is of utmost importance that this joint satellite project makes it possible to meet the requirements of Intersputnik member states. This conclusion is confirmed by the following numbers. Currently, Intersputnik uses more than eighteen equivalent transponders<sup>14</sup> on the satellite located at 75 degrees East, just short of 100% out of which are used to provide up-to-date satellite telecommunications services in the Intersputnik member states.

## **II. Other Practice**

More states that have never been members of the “space club” are now willing to have their own satellite telecommunications systems. The placing into orbit of national satellites, first and foremost, is of particular strategic importance to eliminate the dependence on foreign countries and ensure information security.

### **II.1. Türkmen Älem / MonacoSat at 52 Degrees East**

In April 2015, the first Turkmen telecommunications satellite was successfully launched. The decision to move forward with the national satellite project follows the creation in early 2011 of a Turkmen space agency.

The TurkmenÄlem satellite is owned by Turkmenistan's Ministry of Communications, which signed an agreement with Space Systems International-Monaco S.A.M. (SSI), under which the satellite will be stationed at the Monaco-registered 52 degrees East for its 15-year lifetime.<sup>15</sup>

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11 Today called ABS-1.

12 Hereinafter, “degrees East” or “degrees West” means a location in GSO.

13 Formerly known as Asia Broadcast Satellite, Ltd. Hereinafter, “ABS”.

14 In order to compare the total capacity available on a satellite, a “transponder equivalent” or TPE is defined to consist of 36 MHz of satellite capacity.

15 <http://spacenews.com/thales-alenia-build-turkmenistans-first-satellite/>.

The satellite is equipped with thirty eight transponders, twelve of which have been leased to SSI for the life of the satellite, in exchange for the use of Monaco's orbital position.<sup>16</sup> Under the collaboration agreement with SSI, SES of Luxembourg has the rights to commercialize the entire of these twelve transponders under the name of MonacoSat.<sup>17</sup>

The TurkmenÄlem satellite will be used to transmit national radio and television channels, both standard and high definition. Considering that the remaining transponders are more than enough for the above needs, part of them are going to be leased to interested parties.<sup>18</sup>

### **II.2. Belintersat-1 at 51.5 Degrees East**

For the beginning of 2016 there is slated the launch of the first Belarusian telecommunications satellite to 51.5 degrees East. Belintersat-1 satellite is manufactured by China Great Wall Industry Corporation, which signed a cooperation agreement on the orbit position usage with China Satellite Communication Co. Ltd.<sup>19</sup> However, in late 2014, the administration of Belarus filed its own satellite network at 51.5 degrees East.

It is interesting that Belarus's national telecommunications and broadcasting system project is being carried out by China on a turnkey basis. China not only builds and launches the satellite but also funds the entire project.<sup>20</sup>

### **II.3. Lybid-1 at 48 Degrees East**

Until recently, Ukraine planned to procure its own satellite Lybid-1. The initially designated orbital location at 38.2 degrees East could interfere with the existing satellites of French operator Eutelsat S.A. at 36 degrees East. In March 2012, Ukrkosmos State Enterprise and Eutelsat S.A. agreed that the Ukrainian satellite would operate from 48 degrees East, which belonged to Eutelsat S.A. but was not fully utilized by the French company.<sup>21</sup>

### **II.4. Bangabandhu at 119.1 Degrees East**

Bangladesh becomes one of the most recent in the list of nations that have decided to build their own satellites. Currently, the country's demand is met by leasing satellite capacity from commercial satellite fleet operators, which

16 Hereinafter, references to anybody's orbital position are for simplification only and do not imply any actual ownership of a given position by anybody, rather it is the right of use of frequency assignments to satellite networks filed in a given orbital position.

17 [www.ses.com/4233325/news/2013/15559071](http://www.ses.com/4233325/news/2013/15559071);

[www.nasaspaceflight.com/2015/04/spacex-falcon-9-loft-turkmenistans-first-satellite/](http://www.nasaspaceflight.com/2015/04/spacex-falcon-9-loft-turkmenistans-first-satellite/).

18 <http://tdh.gov.tm/ru/2013-04-13-07-33-61/13275-2015-05-17-12-05-42>.

19 [www.belintersat.com/en/content/history](http://www.belintersat.com/en/content/history).

20 [www.interfax.by/news/belarus/1124367](http://www.interfax.by/news/belarus/1124367).

21 [www.nkau.gov.ua/gateway/news.nsf/NewsTodayR/F892AE7E9F0B4197C22579B8004FD96D!open](http://www.nkau.gov.ua/gateway/news.nsf/NewsTodayR/F892AE7E9F0B4197C22579B8004FD96D!open).

cost almost 14 million US dollars each year, with the amount increasing progressively.<sup>22</sup>

The country first applied for an orbital position at 102 degrees East in 2007, but did not succeed in international frequency coordination.<sup>23</sup> As Bangladesh wanted to launch its own satellite by March 2017,<sup>24</sup> they decided to procure an orbital position.<sup>25</sup> Therefore, in January 2015, an agreement on the use of 119.1 degrees East was signed between Bangladesh and Intersputnik. In the future, Bangladesh is planning to increase the radio-frequency spectrum available at this orbital position by filing its own frequency assignments.

The Bangabandhu satellite to be launched in 2017 will serve the SAARC<sup>26</sup> countries along with Indonesia and the Philippines as well as the “Stan” countries – such as Turkmenistan, Kyrgyzstan, and Tajikistan.<sup>27</sup> It is noteworthy that five of these countries are members of Intersputnik.

### **II.5. Azerspace-1 / Africasat-1a at 46 Degrees East**

Azerbaijan’s first telecommunication satellite Azerspace-1 was launched in February 2013 and brought into commercial operation in the Malaysian 46 degrees East.<sup>28</sup> The satellite was developed as a result of collaboration between Azercosmos Joint Stock Company, a company set up by the Ministry of Communications and Information Technologies of the Republic of Azerbaijan, and MEASAT of Malaysia, which enjoys the rights to use the orbital position.<sup>29</sup>

MEASAT has been assisting Azercosmos in implementing the Azerspace-1 project not only by means of providing the radio-frequency spectrum at 46 degrees East, but also by improving skills of technical staff and exchanging space industry experience. MEASAT is also a major client to use the Azerspace-1, which MEASAT calls Africasat-1a.<sup>30</sup> The two companies share the payload.

22 [www.dhakatribune.com/business/2014/dec/08/russian-firm%E2%80%99s-slot-be-taken-first-satellite](http://www.dhakatribune.com/business/2014/dec/08/russian-firm%E2%80%99s-slot-be-taken-first-satellite).

23 [www.dhakatribune.com/bangladesh/2015/jan/01/government-okays-satellite-orbital-slot-procurement](http://www.dhakatribune.com/bangladesh/2015/jan/01/government-okays-satellite-orbital-slot-procurement).

24 [www.dhakatribune.com/bangladesh/2014/jul/14/pm-disappointed-over-progress-launching-satellite](http://www.dhakatribune.com/bangladesh/2014/jul/14/pm-disappointed-over-progress-launching-satellite).

25 [www.dhakatribune.com/business/2014/dec/08/russian-firm%E2%80%99s-slot-be-taken-first-satellite](http://www.dhakatribune.com/business/2014/dec/08/russian-firm%E2%80%99s-slot-be-taken-first-satellite).

26 South Asian Association for Regional Cooperation (SAARC) is an economic and political organization of eight countries in Southern Asia which are Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka.

27 [www.dhakatribune.com/bangladesh/2015/jan/01/government-okays-satellite-orbital-slot-procurement](http://www.dhakatribune.com/bangladesh/2015/jan/01/government-okays-satellite-orbital-slot-procurement).

28 [www.measat.com/pdf/press/2013/pr080213.pdf](http://www.measat.com/pdf/press/2013/pr080213.pdf).

29 <https://www.orbitalatk.com/space-systems/commercial-satellites/communications-satellites/docs/AzerspaceAfricasat-1a.pdf>.

30 [www.news.az/articles/tech/76283](http://www.news.az/articles/tech/76283).

## II.6. Azerspace-2 / Intelsat 38 at 45 Degrees East

Successful cooperation with MEASAT of Malaysia at 46 degrees East inspired Azercosmos to deploy a second national satellite – Azerspace-2.

In February 2015, Intelsat S.A., the world's leading provider of satellite services, and Azercosmos announced that the two companies had signed a strategic agreement for the 45 degrees East.<sup>31</sup> There a filing was published for the advance publication of an Azerbaijani satellite network, a request for coordination of this satellite network is pending processing. At the same time, there are several EUROPE\*STAR filings in use at 45 degrees East earlier submitted by Germany. In 2006 Intelsat S.A. bought PanAmSat Holding Corporation,<sup>32</sup> which, in turn, bought in 2005 operator EuropeStar Ltd.,<sup>33</sup> and thus gained control over EUROPE\*STAR frequency assignments.

Intelsat and Azercosmos will collaborate on the design of the new satellite, which will have a double name Azerspace-2 / Intelsat 38, and leverage their respective strengths and capabilities during the manufacturing and operational phases of development. The satellite will replace the aging Intelsat 12 satellite now at that slot and extend Azercosmos's reach beyond its current 46 degrees East, where its first satellite, Azerspace-1, is located. Azerspace-2 / Intelsat 38 is scheduled to be launched in 2017.<sup>34</sup>

## III. Legal Regulation and Nature

After reviewing a sufficiently large number of examples, it would be appropriate to describe legal aspects.

### III.1. Outer Space Treaty and ITU Documents

The principal source of international space law one can not but turn to is the Outer Space Treaty.<sup>35</sup> It specifies that outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.<sup>36</sup> At the same time, the GSO is considered an integral part of outer space.<sup>37</sup> The above

31 <http://spacenews.com/intelsat-azercosmos-partnering-on-new-satellite-at-45-east/>.

32 [www.intelsat.com/about-us/our-history/2000s/](http://www.intelsat.com/about-us/our-history/2000s/).

33 <http://spacenews.com/europestar-give-panamsat-middle-east-african-reach/>.

34 [www.intelsat.com/news/intelsat-and-azercosmos-partner-to-deliver-new-satellite-at-45-degrees-east/](http://www.intelsat.com/news/intelsat-and-azercosmos-partner-to-deliver-new-satellite-at-45-degrees-east/).

35 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, January 27, 1967.

36 Article II, Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, January 27, 1967.

37 In 2001, in the course of its 44th session the United Nations Committee on the Peaceful Uses of Outer Space agreed on the following statement, which had been discussed by the 38th session of the Scientific and Technical Subcommittee held earlier that year: "The geostationary orbit, characterized by its special properties, is part of

leads to an unequivocal conclusion that orbital positions can not be owned by anyone and, consequently, no one can dispose of them by way of alienation that is by selling, exchanging, donating or leasing them, etc.

It is a fundamental understanding, which found its way both into the United Nations treaties and principles on outer space and the basic texts of the ITU, that all countries, irrespective of their degree of economic or scientific development, have equal rights to make use of GSO resources.<sup>38</sup> In order to exercise these rights, states acting through their national administrations may registering their frequency assignments with the ITU Radiocommunication Bureau<sup>39</sup> (Bureau), which assignments do not grant any permanent priority to any individual country or groups of countries, but have a limited period of validity. During this period of validity for any third parties, including the ITU, administrations and satellite operators, that national administration remains the holder of the radio-frequency spectrum including all related rights, obligations, and liability, regardless of the exact manner of its use.

The ITU legal framework does not make it possible to change the holder of a satellite network at one's own discretion and convenience by assigning the rights and liabilities of an administration to another administration. There is a special rule of procedure<sup>40</sup> dealing with a replacement of the administration, which acts as the notifying administration<sup>41</sup> of a satellite network on behalf of an intergovernmental satellite telecommunication organization;

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outer space.” More at [www.unoosa.org/pdf/reports/ac105/AC105\\_761E.pdf](http://www.unoosa.org/pdf/reports/ac105/AC105_761E.pdf) (A/AC.105/761, para. 143) and [www.unoosa.org/pdf/gadocs/A\\_56\\_20E.pdf](http://www.unoosa.org/pdf/gadocs/A_56_20E.pdf) (A/56/20, paras. 125 and 126).

38 Article I, Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, January 27, 1967; No. 78, Article 12, Chapter II and No. 196, Article 44, Chapter VII, Constitution of the International Telecommunication Union; No. 177, Article 12, Section 5, Convention of the International Telecommunication Union.

39 The Radiocommunication Bureau is one of the working bodies of the Radiocommunication Sector of the ITU. More at [www.itu.int/en/ITU-R/information/Pages/default.aspx](http://www.itu.int/en/ITU-R/information/Pages/default.aspx).

40 Rules of Procedure, approved by the Radio Regulations Board, for the application by the Radiocommunication Bureau of the provisions of the Radio Regulations, Regional Agreements and Resolutions and Recommendations of World and Regional Radiocommunication Conferences, available at <https://www.itu.int/pub/R-REG-ROP>.

41 Certain provisions of the ITU Radio Regulations, for example, Nos. 9.1, 9.6.1, 11.15.1, Appendix 30 (4.1.25, 4.1.3, 4.2.6, 5.1.1), Appendix 30A (4.2.6, 4.1.25, 4.1.3, 5.1.2), Appendix 30B (2.6, 6.1), allow an administration to act on behalf of a group of named administrations for the purpose of notifying the Radiocommunication Bureau of frequency assignments to satellite networks. In such cases, the administration acting on behalf of the group is designated as the notifying administration for the group within the meaning of the ITU Radio Regulations. The above-mentioned provisions are also used for the benefit of intergovernmental satellite telecommunication organizations.



however, this rule may only be addressed whenever the satellite network in question remains within the intergovernmental organization. At the same time, there exist some exceptional cases, which were reviewed by the ITU Radio Regulations Board<sup>42</sup> (Board) on the basis of their specific circumstances.<sup>43</sup> But the Board's acceptance of the transfer of satellite networks from one administration to another in said exceptional cases should never be regarded as setting a precedent.

Also, it is advisable to analyze if there exist any restrictions that say how exactly the radio-frequency spectrum must be used – is the administration that filed a satellite network obliged to only have it used by a space station which is under the responsibility of that administration?

During the World Radiocommunication Conference 2012<sup>44</sup> (WRC-2012) it was recognized that an administration can bring into use, or continue the use of, frequency assignments for one of its satellite networks by using a space station which is under the responsibility of another administration or intergovernmental organization.<sup>45</sup> This also means that by allowing the deployment and operation of “somebody else's” satellite in one's “own” orbital position, the ITU admits the possibility of a reverse situation where one's “own” satellite uses “somebody else's” orbital position.

At the same time, the Board accepts and acknowledges that the above cases of temporary use of a space station, which is under the responsibility of another entity, are subject to the terms of a relevant agreement,<sup>46</sup> which is considered not to be in violation of the ITU Radio Regulations and other ITU texts in the current practice of ITU.<sup>47</sup> However, ITU does not delve into this

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42 The Radio Regulations Board is one of the working bodies of the Radiocommunication Sector of the ITU. More at [www.itu.int/en/ITU-R/conferences/RRB/Pages/default.aspx](http://www.itu.int/en/ITU-R/conferences/RRB/Pages/default.aspx).

43 The most recent case concerns the change of the notifying administration of the ARTEMIS-21.5E-DR, ARTEMIS-21.5E-LM and ARTEMIS-21.5E-NAV satellite networks from the administration of France, acting as the notifying administration for the intergovernmental organization European Space Agency (ESA) on behalf of the ESA administrations and Canada (F/ESA), to the Administration of the United Kingdom (G) as from 1 January 2014. Full list of publications relating to change of notifying administration can be found at [www.itu.int/ITU-R/go/space-publication-change-of-administration/en](http://www.itu.int/ITU-R/go/space-publication-change-of-administration/en).

44 Held in Geneva, Switzerland on 23 January-17 February 2012.

45 No. 3.12, Minutes of the Thirteenth Plenary of the World Radiocommunication Conference 2012.

46 No. 4.7.1, Report by the Radio Regulations Board to WRC-15 on Resolution 80 (Rev.WRC-07).

47 No. 4.7.2, Report by the Radio Regulations Board to WRC-15 on Resolution 80 (Rev.WRC-07).

matter supposing that commercial aspects of the use of radio-frequency spectrum are not covered by the ITU's terms of reference.<sup>48</sup>

### **III.2. Legal Nature**

Considering the existing legal regulation, one can conclude that the leasing of orbital positions is just an established and most widely used name of the phenomenon in question, which has nothing to do with its legal nature.

The examples given earlier show that this phenomenon is a type of cooperation between parties in using an orbital position in the GSO where one of the parties enjoys a temporary right of use of the radio-frequency spectrum and enlists the other party for the use of that spectrum on agreed terms. These terms, *inter alia*, provide for certain consideration for the enlistment for the use of the spectrum, which consideration may be executed in any form – in cash, satellite capacity, or another, or even a mixture of several of them, and constitute an agreement of a commercial nature in accordance with which a joint satellite project is implemented.

On the one hand, implementation of joint satellite projects does not prejudice the fundamental principles of the Outer Space Treaty and is not in violation of the ITU Radio Regulations and the basic texts of the ITU. On the other hand, the above sources of law do not regulate commercial relations, whose conditions are defined solely by parties of joint satellite projects.

### **III.3. Correlation with "Paper Satellites"**

It is impossible to address the subject of the lease of orbital positions without correlating it with "paper satellites", meaning cases when administrations file satellite networks with the ITU in order to block certain radio-frequency spectrum, rather than have it used in the future by an operational satellite. Such blocking is possible due to the priority of a satellite network filed earlier over satellite networks filed later until the deadline set by the ITU Radio Regulations for bringing the radio-frequency spectrum into use. For many years such frequency filings just remain on paper<sup>49</sup> impeding international frequency coordination with the adjacent satellite networks and making the use of an orbital position less efficient.

In contrast to that, the purpose of joint satellite projects based on the enlistment for the use of the radio-frequency spectrum is to team up so that an operational satellite can start to actually use radio-frequency spectrum. Thus, such projects aim at preventing any "paper satellites" from coming into being, and in this context it is not an abusive practice.

Some may recall another example of filing satellite networks with no intention of their use. The TongaSat case seems to be one of the most famous ones. Relatively

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48 No. 4.7.2, Report by the Radio Regulations Board to WRC-15 on Resolution 80 (Rev.WRC-07).

49 This is why such satellites started to be called "paper satellites".

recent cases also exist. However, we do not know exactly what made a country invite bids for the radio-frequency spectrum – desire to earn money or adverse circumstances when outside partners are the only way to activate satellite networks and prevent “paper satellites”. The more so that any specific case has its own background and a multitude of different features, and it is impossible to identify and apply any universal criteria to distinguish good practices from unfair ones. In the absence of clear rules and principles prohibiting joint use of the GSO, there exist no reasons for accusing anybody of breaking them. However, it would be appropriate to encourage states to ensure that national opportunities for abusive practice are minimized.

#### **III.4. Alternative Ways**

Assessing the legitimacy of the joint satellite projects, one should also bear in mind that there are other quite lawful ways to get quick access to the radio-frequency spectrum. These are corporate mergers and acquisitions. Apart from the above example where Intelsat S.A. acquired the rights to EU-ROPE\*STAR satellite networks there are some others.

In 2014, Eutelsat S.A. bought Satelites Mexicanos S.A. (Satmex), which had orbital positions over North America. By buying Satmex, Eutelsat S.A. not only added more satellites to its fleet but also gained access to three contiguous orbital positions – 113, 114.9, and 116.8 degrees West.<sup>50</sup>

Thus, there are alternative ways to meet the demand for orbital positions.

#### **IV. Practical Advantages**

Speaking of practical advantages of joint satellite projects, it should be noted that any cooperation, which means working together for a common purpose, implies pooling resources – financial, technological, intellectual, and any others. So what are the practical advantages of such projects?

##### **IV.1. Simpler Financing**

Maybe, the first advantage that springs to mind is that the implementation of joint satellite projects helps acquire sufficient financing.

Depending on various factors, the average total cost of satellite manufacture, in-orbit delivery, and insurance may be in the range of 200-300 million US dollars. On top of this hefty sum, just throw in the cost of ground infrastructure and other related expenses. It turns out that one’s own satellite is a luxury both for governments and for satellite operators.

Simpler funding makes new satellite systems more affordable. In turn this is advantageous for customers because satellite operators are able to regularly augment and timely update their fleets expanding their coverage and broad-

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50 [www.eutelsatamericas.com/home/support/resources/press-release-archives/2014-1/press-list-container/press-release.html](http://www.eutelsatamericas.com/home/support/resources/press-release-archives/2014-1/press-list-container/press-release.html).

ening the range of telecommunication services, as well as improving service quality. This also makes it possible to overcome a high degree of GSO monopolization with more users having access to the radio-frequency spectrum on a “secondary basis”. This helps new players enter the satellite telecommunications services market and makes competition stronger.

#### **IV.2. Gain in Time**

Whenever a national satellite system needs to be procured within a limited period of time or there exists other objective time factors, implementation of a joint satellite project may be a perfect solution.

Formally, any new states or satellite operators that are willing to launch their own satellites have to follow the routine of filing, coordinating and notifying their new satellite networks in the GSO.<sup>51</sup> However, they clearly understand that, on the one hand, this would take much time and require much effort. On the other hand, considering the current overpopulation of the GSO, the results of the international frequency coordination may be strict enough and greatly limit the capabilities of a future satellite system.

Also, the following positive practice is worth noting. Having obtained quick access to the radio-frequency spectrum, its users do not rest on their oars but enhance the potential of the orbital position by filing their own frequency assignments. This means that the use of the existing spectrum is just a starting point for a future full-fledged satellite project adapted to the needs of a specific state or satellite operator.

#### **IV.3. Effectiveness of GSO**

In certain cases a state’s needs or a satellite operator’s requirements can be met by several transponders, fewer than a satellite usually carries. Joint satellite projects, which often imply sharing of a new satellite’s payload, make it possible to provide sufficient space for several partners on a single satellite thus reducing the total number of satellites in GSO and avoiding over-occupancy.

Moreover, cooperation helps apply scientific and technological achievements and the latest advances and, consequently, limit the radio-frequency spectrum used by a single satellite to the minimum required. This saves the limited GSO resource and makes its use more efficient.

#### **IV.4. Developing Countries’ Needs**

Practice shows that joint satellite projects are widely spread among the developing countries that either directly participate in their implementation or take advantage thereof by getting access to satellite telecommunications systems installed by neighboring countries. Anyway, an opportunity for a developing

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51 With the exception for planned band frequencies.

country to gain access to new technologies and advanced services reduces its lag and lays the groundwork for further growth of its space potential.

## V. Conclusion

In conclusion, let us turn to Section 0.3 of the preamble of the ITU Radio Regulations, which stipulates the following:

“in using frequency bands for radio services, members shall bear in mind that radio frequencies and the geostationary-satellite orbit are limited natural resources and that they must be used rationally, efficiently and economically [...] so that countries or groups of countries may have equitable access to both, taking into account the special needs of the developing countries and the geographical situation of particular countries”.<sup>52</sup>

The examples and numerous practical advantages listed in the previous sections show that the purposes and results of joint satellite projects based on the enlistment for the use of the radio-frequency spectrum are in line with the spirit of Section 0.3 of the preamble of the ITU Radio Regulations. At the same time, analysis of the existing legal regulations indicates that joint satellite projects are *per se* absolutely free of any violations.

Taking into account the above, is it worthwhile to criticize the genuine drive of administrations and satellite operators for cooperation in outer space and minimize the opportunities of GSO?

The scarcity of the radio-frequency spectrum and the existing high demand for such unique limited natural resource as orbital positions will inevitably result in many more mutually beneficial joint satellite projects. It is quite natural as we can achieve more in cooperation. Joint satellite projects could offer a win-win solution to future achievements for the benefit of all.

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52 Article 44, Chapter VII, No. 196, Constitution of the International Telecommunication Union contains a similar provision.

